

## Erosion Control on Major Maintenance Projects (Including Ditching and Shoulder Cutting Operations)

- When a major maintenance operation is going to have over an acre of disturbance, an erosion control plan is required. For areas that are environmentally sensitive including areas containing high quality waters and wetlands and trout streams an erosion control plan is also required.
  - A visit to the job site is required to determine the appropriate erosion control devices that are necessary to satisfy the Department's objectives. The selection of these devices shall be in accordance with the Standard Details and design criteria.
  - Erosion control devices are to be shown on the construction plans. Consideration for adequate phasing must be included in the plan
  - All land disturbing activities shall be planned and conducted so as to prevent off-site sedimentation damage to adjacent streams and properties.
  - The erosion control plan shall be developed to minimize the time of exposure and the size of the areas under construction.
  - Consideration should be given to the installation of energy dissipaters at non-live water pipe outlets.
  - Environmentally Sensitive Areas (ESA's) need to be identified on the plan and require special design criteria. A variance from Land Quality is needed if more than 100 ft is impacted within the 25 ft buffer zone of a trout stream.
  - Impacts must be avoided to endangered and threatened plant and animal species.
  - The completed plan shall serve as the erosion control plan for the project and must be on file in the District Office.
  - Copies of the plan need to be sent to the County Maintenance Engineer, the Roadside Environmental Field Operations Engineer, the Road Maintenance Supervisor and the Construction Foreman.
  - The Construction Foreman in coordination with the County Maintenance Engineer and the plan designer have the authority to adjust and alter erosion control plans to meet actual field conditions.
  - The Construction Foreman must maintain an updated erosion control plan on the jobsite at all times. Any changes to the original erosion control plan must be reported to the District Engineer or his representative.
  - The District Engineer's plan will in turn be updated to reflect as near as practical the actual erosion control plan implemented.
- Ditching and/or shoulder work should be performed only when the need dictates. Do not perform these activities on a routine basis but only as it is needed.
- Problems arising from ditching operations include:
  - Erosion Control and Sediment Control
  - Disposing of ditch/waste material
- During ditching and sloping operations try to preserve the existing groundcover whenever possible. When reshaping ditches maintain an adequate slope and avoid 'boxing' of the ditch.

- When there is only a shoulder cutting operation, the disturbed shoulders need to be seeded back and mulched or matted. In addition, if the soil is susceptible to eroding, ditch checks and turnout measures need to be implemented.
- When there is a ditching operation or a shoulder cutting and ditching operation, turnout measures (Type A, Silt Checks or Wattles) need to be installed. If the disturbed drainage length is great enough in length, ditch checks (Type B, Silt Checks or Wattles) need to be installed up the ditch line. The formula for the number of ditch checks needed is 300ft/ditchline grade. The turnout measure is included as one of the ditch checks. In addition, when the soil is susceptible to eroding, turnout basins also need to be installed. All disturbed areas need to be seeded back and mulched or matted.
- When there is a major maintenance operation that includes disturbance of the ditch back slope and/or cut slope, a turnout measure (Type A, Silt Checks with a Type B, Basin) need to be installed. If the disturbed drainage length is great enough in length, ditch checks (Type B, Silt Checks or Wattles) need to be installed up the ditch line. The formula for the number of ditch checks needed is 300ft/ditchline grade. The turnout measure is included as one of the ditch checks. All disturbed areas need to be seeded back and mulched or matted.
- When disturbance occurs on a fill slope side of a project near an Environmentally Sensitive Area (ESA), perimeter erosion control measures need to be used. Most of the time, this would consist of Silt Fence with Type A, Silt Checks or a section of Special Sediment Control Fence or a Wattle installed at the low-points or ends of the Silt Fence where run-off would leave the Silt Fence.
- If the disturbed ditch line previously had rip-rap installed, then the rip-rap with filter fabric needs to be reinstalled if it was disturbed by the operation.
- If the disturbed ditch line's grade is greater than 1% but less than 5%, then the ditch line needs to have matting installed.
- If the disturbed ditch line's grade is between 5% and 7%, then the ditch line needs to have Permanent Soil Reinforcement Matting (PSRM) or Rip Rap installed.
- If the disturbed ditch line's grade is greater than 7%, then the ditch line needs to have Rip Rap installed.
- Erosion control measures need to be installed in the disturbed areas of any project before the end of the day or sooner if rainfall is eminent.
- When material is wasted or borrowed within the right of way, an erosion control plan is needed but not a reclamation plan. Site choice is critical as loose fill material on fill slopes tends to destabilize fills. Material should not be wasted near any environmentally sensitive sites including streams, ponds or wetlands.

- A Reclamation plan shall accompany any land disturbing activity associated with the project that exceeds the project limits. These include waste and borrow sites as well as applicable staging areas.
- When excess material is going to be used to build shoulders, then perimeter erosion control measures need to be used. Most of the time this would consist of Silt Fence with Type A, Silt Checks or a section of Special Sediment Control Fence or a Wattle installed at the low-points or ends of the Silt Fence where run-off would leave the Silt Fence.